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The Effect Of Earnings Management, Solvency, And Firm Size On Financial Distress

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Abstract

This study was designed to investigate the impact of earnings management, solvency, and firm size on financial distress among manufacturing firms listed on the Indonesia Stock Exchange (IDX) during the 2022–2024 period. The study employs a quantitative methodology based on an associative design. The data consist of secondary data obtained from companies' financial statements and annual reports. Purposive sampling was used as the sampling technique, resulting in a sample of 131 firms with a total of 393 observations over the three-year period. The analytical method used in this study is binary logistic regression analysis. The empirical results reveal that, when analyzed individually, earnings management has no significant effect on financial distress, solvency exhibits a significant positive effect on financial distress, and firm size demonstrates a significant negative effect on financial distress. Collectively, earnings management, solvency, and firm size have a significant simultaneous effect on financial distress.

Keywords: earnings management, solvency, firm size, financial distress

INTRODUCTION

In the Indonesian economy, the manufacturing sector occupies a highly strategic position due to its substantial role in labor absorption, Gross Domestic Product (GDP) growth, and the strengthening of national competitiveness. In the modern business ecosystem, the manufacturing industry serves as the backbone for meeting market demand through production processes that emphasize efficiency, quality, and innovation. According to data from the Central Statistics Agency (BPS), approximately 35,000 manufacturing companies were operating in Indonesia in 2025, underscoring the industry's vital role in supporting economic growth. With so many companies operating in this sector, manufacturing not only creates added value for the economy but also

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serves as the main pillar of national production activities, involving an extensive supply chain and millions of workers.

This strategic role requires companies to continuously improve operational efficiency, adopt more advanced technologies, and maintain product quality standards to remain competitive in the global market. However, in recent years, this sector has faced increasing pressure due to global economic dynamics, international competition, and weakening domestic demand. These challenges have been exacerbated by the influx of cheap imported goods, which has made it difficult for many domestic industries to compete, leading to a decline in production capacity and a wave of massive layoffs. These prolonged conditions have raised concerns that the domestic manufacturing industry will be pushed out of its own market, while simultaneously facing an increasingly heavy financial burden (Cahyaningrum & Budiyanti, 2025) .

One of the policies contributing to this situation is the issuance of Minister of Trade Regulation No. 8 of 2024 on Import Policies and Regulations. This policy relaxes import licensing requirements by eliminating the technical review (Pertek) requirement for certain commodities. As a result of this policy relaxation, the import process has become easier, potentially increasing the volume of imported goods entering the domestic market. This situation has led to the flow of imported goods no longer being optimally controlled and has weakened the organization of import data which serves as the basis for compiling the industrial commodity balance sheet ultimately intensifying competition for the local manufacturing industry and weakening the domestic market structure.

Table1. Profit and Loss Data for Manufacturing Companies

Subsector	Code	Net Profit in Rupiah		
		2024	2023	2022
Raw Materials (IDX-IC Sector B)	DPNS	6,896,493,659	20,390,409,211	26,951,121,522
	WSBP	(920,214,030,926)	6,148,621,649	675,320,565,576
	SPMA	103,111,995,451	173,130,701,130	330,814,929,941
	TALF	25,453,385,287	37,711,997,359	138,721,742,965
Industrial (Sector C IDX-IC)	ARNA	429,556,803,504	446,192,654,957	588,522,715,180
	MLIA	499,356,470	647,036,197	1,006,120,133
	ARKA	2,956,035,677	10,150,430,443	6,101,148,237
	PROFIT	(8,742,226,240)	(3,938,779,936)	(4,447,981,353)
Primary Consumer Goods	RICE	143,475,410	415,383,485	1,037,538,518
	SKBM	(78,800,278,137)	10,037,671,395	86,400,565,229
	TAYS	(67,428,702,632)	(18,752,508,743)	9,802,429,938
	TRGU	(62,827,505,724)	1,029,038,618	49,851,187,887

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Subsector (IDX-ISector D)	Code	Net Profit in Rupiah		
		2024	2023	2022
Consumer Goods (IDX-IC Sector E)	KICI	(6,154,472,191)	(4,534,943,789)	1,544,433,254
	LMPI	(37,820,895,968)	(28,951,659,103)	(22,041,711,834)
	RICY	(117,542,516,905)	(77,850,787,628)	(68,546,889,467)
	BIMA	(13,970,286,186)	(6,820,417,191)	77,189,389,870
Healthcare (IDX-IC Sector F)	BRAND	154,754,763	181,997,144	180,717,861
	PEHA	(288,720,115)	11,836,904	30,009,425
	PYFA	(387,675,099,381)	(85,296,986,735)	275,257,593,989
	TSPC	1,540,822,748,241	1,233,661,029,781	1,061,189,459,765

Source: Financial Statements, 2026

Pressure on the manufacturing sector is reflected in the decline in financial performance of a number of companies listed on the Indonesia Stock Exchange (IDX). As shown in Table 1, the majority of companies experienced a contraction in profits, and some even incurred significant losses, particularly in the raw materials, consumer goods, and basic consumer goods subsectors. In addition, macroeconomic indicators for the industry also point to a slowdown, with growth in the manufacturing sector reaching only 4.43% in 2024—the lowest figure in the past three years—and contributing 18.98% to GDP (BPS, 2025). These conditions indicate significant financial pressure resulting from declining demand and rising operating costs.

A further consequence of this situation is the rise in factory closures and layoffs in the manufacturing sector. Data from the Ministry of Industry shows that over a six-month period—from August 2024 to February 2025—approximately two million manufacturing workers were laid off due to import relaxation policies that triggered a flood of cheap imported goods and weakened the domestic labor-intensive industry. A similar phenomenon was also observed in the first half of 2025, when various large companies—such as PT Sritex, PT Asia Pacific Fibers, PT Danbi International, PT Yamaha Music, and PT Sanken Indonesia—faced bankruptcy, massive layoffs, and even permanent closures due to declining demand, an inability to adapt to new technologies, and the relocation of production to other countries.

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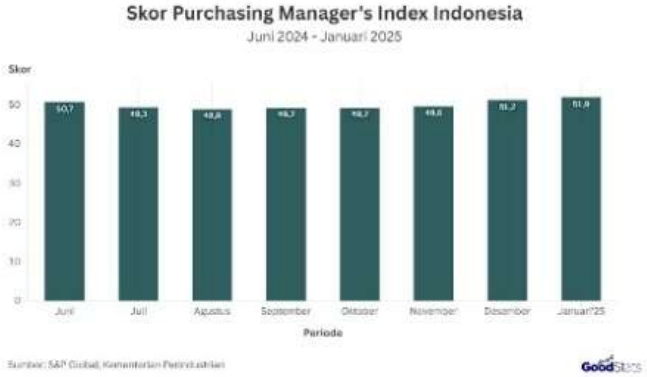


Figure1. Indonesia's Manufacturing PMI
Source: GoodStats, 2025

A condition in which a company's financial stability is disrupted, known as *financial distress*, is characterized by a sustained decline in profits and an inability to meet financial obligations (Indrati & Azizah, 2022; Kristanti, 2020) . This condition does not occur suddenly but is a consequence of various factors—both internal and external to the company—such as the relaxation of import policies. Figure 1 shows that for five consecutive months, from July through November 2024, Indonesia's manufacturing *Purchasing Managers' Index* (PMI) experienced a contractionary phase, reflecting a decline in production activity and demand. According to the Ministry of Industry, one of the factors contributing to Indonesia's weak PMI is the lack of regulations supporting the domestic industry.

The industry's room to maneuver is currently being restricted by existing regulations, with import relaxation policies being one form of regulation that can affect domestic demand and corporate sales. The proliferation of imported products—which are more affordable and offer greater variety—has caused consumers to shift away from domestic products, resulting in national manufacturing companies losing market share. This decline in domestic demand has a direct impact on reduced production volumes, lower capacity utilization, and increased cost pressures for many companies, particularly in subsectors that are sensitive to import competition, such as textiles, apparel, leather, and footwear. Consequently, more lenient import policies have become one of the key factors weakening Indonesia's manufacturing performance throughout 2024 and increasing the risk of financial strain on the domestic manufacturing industry.

One internal trigger suspected of contributing to *financial distress* is *earnings management*. This practice involves company management's efforts to manipulate financial statements with the aim of presenting performance that is better than the actual reality. However, such actions can actually conceal underlying financial problems and increase the risk of future *financial distress* (Sayidah et al., 2020) . The case of PT

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Indofarma serves as a concrete example of how financial statement manipulation can worsen a company's condition to the point of experiencing serious financial difficulties. Based on the audit findings, the financial statement manipulation involved inflating inventory values and recording transactions that did not reflect actual conditions to conceal a decline in the company's performance that had actually been occurring for several years prior. As a result, the financial statements no longer accurately represented the company's actual condition, leading to inappropriate decisions that exacerbated PT Indofarma's financial pressures to the point where it struggled to meet its operational obligations.

Nevertheless, research on the impact of *earnings management* on *financial distress* remains limited and has rarely been the primary focus of previous studies. Furthermore, the results of prior research identified by the authors reveal conflicting findings. Research conducted by Agatha & Fathoni (2025) and Haris & Ghozali(2023) indicates that *earnings management* has a significant negative effect, whereas studies by Mardianto et al.(2025) , Rinjani & Indrati (2024) , and Luu Thu(2023) show a significant positive effect. Conversely, studies by Dewi & Efendi(2023) and Kamau et al.(2022) suggest that *earnings management* has no effect on *financial distress*.

Solvency is also believed to be a key factor influencing a company's *financial distress*. High debt levels increase interest expenses and the risk of default, particularly if not offset by the ability to generate profits (Ginanjar & Rahmayani, 2021) . The case of PT Sri Rejeki Isman Tbk (Sritex) serves as empirical evidence confirming this situation: when the company undertook major expansion financed by significant debt, a decline in demand due to the pandemic caused the company's revenue to plummet while its debt obligations remained high. This imbalance made it difficult for the company to meet its payment obligations, forcing it to restructure its debt. However, the ongoing financial pressure ultimately rendered the company unable to survive, leading to bankruptcy.

Previous research examining the effect of solvency on *financial distress* has yielded conflicting findings. Studies conducted by M. Fauzan et al.(2024), Ginanjar & Rahmayani(2021), Kusmawati et al.(2022), and Subari (2024) demonstrate that solvency has no effect on *financial distress*. Meanwhile, studies conducted by Febriyanti & Haryanto(2024), Nuzurrahma & Fahmi(2022), Ramadani & Ratmono(2023), and Taniva(2026) found that solvency has a significant negative effect on *financial distress*, whereas research by Rinjani & Indrati(2024) and Wangsih et al.(2021) found a significant positive effect.

Another factor that plays a role in influencing *financial distress* is *firm size*. Large-scale companies tend to have greater access to capital, more stable financial fundamentals, and superior business resilience compared to small-scale companies (Wangsih et al., 2021) . This can be seen in a comparison between PT Tri Banyan Tirta

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Tbk (ALTO) and PT Sariguna Primatirta Tbk (CLEO). ALTO, as a relatively small-scale company, experienced a significant decline in revenue, leaving it unable to cover its operating costs. This situation forced the company to suspend the operations of its subsidiaries and sell assets to ensure business continuity. In contrast, CLEO, a large-scale company, was actually able to record growth in sales and profits. This was supported by its massive distribution network and significantly larger production scale, enabling the company to not only survive but also expand amid economic pressures.

Previous research examining the relationship between *firm size* and *financial distress* has yielded inconsistent results. Earlier studies testing the effect of *firm size* on *financial distress* have also shown inconsistent results. Studies conducted by Kusmawati et al.(2022), Subari(2024), and Taniva(2026) found that *firm size* does not affect *financial distress*. Meanwhile, research conducted by Baghaskara & Retnani,(2023) , Febriyanti & Haryanto(2024), Maula et al.(2023) and Wangsih et al. (2021) indicates that *firm size* has a significant negative effect on *financial distress*.

Previous studies have produced inconsistent results regarding the effects of *earnings management*, *solvency*, and *firm size* on *financial distress*. Unlike the majority of previous studies, which relied on linear regression analysis or panel data, this study employs a binary logistic regression method. This method was chosen to more accurately predict the probability of *financial distress* by classifying companies into two categories: those in a state of *financial distress* and those in a healthy state.

Based on this phenomenon, this study aims to examine the effects of *earnings management*, solvency, and *firm size* on *financial distress* among manufacturing companies listed on the Indonesia Stock Exchange during the 2022–2024 period using the binary logistic regression method. This study is expected to contribute to the development of academic literature and can serve as a reference for practitioners and policymakers in maintaining the stability of the manufacturing sector.

THEORETICAL REVIEW

Signaling Theory

Signaling *theory* is defined as the act of communicating signals or cues containing information regarding financial statements from company management to external parties, which can be used as parameters in decision-making (Spence, 1973 in Rinjani & Indrati, 2024) . Signaling theory aims to reduce information asymmetry through the presentation of financial statements that possess the quality and integrity necessary to accurately reflect a company's performance. Information asymmetry is a situation where there is an imbalance in access to information between two parties, such that one party has access to more extensive data than the other. In this context, as an internal party, management has more extensive access to information regarding the company's

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fundamental conditions and operational achievements, while external parties only obtain limited information through financial statements or the company's official publications (Ananada & Wahidahwati, 2024; Ginanjar & Rahmayani, 2021) .

Companies with sound financial fundamentals tend to send positive signals to the market, such as increased profits, business expansion, or asset growth, which indicate strong prospects and a low risk of *financial distress*. Conversely, declining performance, rising losses, or conditions such as PKPU serve as negative signals indicating potential financial difficulties. However, the existence of information asymmetry also creates opportunities for management to engage in *earnings management* as an effort to shape a positive perception, even though such actions may actually mislead investors and undermine the credibility of financial statements. These actions can lead to decisions that may not align with the company's actual condition and may ultimately worsen the situation when *financial distress* occurs (Ananada & Wahidahwati, 2024; Rinjani & Indrati, 2024)

Solvency serves as a financial signal that directly reflects a company's risk level. Debt levels can be a positive signal when used for productive expansion, but become a negative signal if not balanced by strong performance, as they increase the risk *of financial distress* (Rinjani & Indrati, 2024; Wangsih et al., 2021) . On the other hand, large-scale companies are generally considered to have higher levels of financial stability and greater flexibility in weathering economic pressures, in contrast to small-scale entities, which actually signal higher risk (Maula et al., 2023) . Thus, *earnings management*, solvency, and *firm size* serve as signals that investors use to assess a company's condition and predict the risk *of financial distress*.

Financial Distress

Financial distress is a situation in which a business entity is in a phase of financial fragility, indicated by a decline in profits—or even consecutive negative profits—and the company's inability to meet its current obligations as they fall due using its operating cash flow . *Financial distress* is the stage preceding bankruptcy, during which a company faces significant uncertainty and threats. *Financial distress* does not occur suddenly but is triggered by various factors, such as disruptions in cash flow liquidity, high levels of corporate liabilities, and a material increase in operating losses (Rohmadini et al., 2018 in Rinjani & Indrati, 2024) . Failure to identify and address financial distress early on can increase the risk of bankruptcy; therefore, early detection is necessary so that management can take preventive measures to enable the company to recover and maintain its operational continuity (Baghaskara & Retnani, 2023; Meryana & Setiany, 2021) .

Earnings Management

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E*arnings management* is an intervention carried out by company management to adjust the earnings presented in financial statements for specific purposes, whether to provide a better picture to stakeholders or to achieve desired profit targets (Tsaqif & Agustiningsih, 2021) . This practice arises from a conflict of interest between principals and agents, in which agents tend to seek to maximize their personal gains even at the expense of the principal's interests by manipulating financial statements when profit targets are not met. Earnings management practices can be implemented by adopting specific accounting procedures, accelerating revenue recognition, timing inventory-related transactions—such as expediting or delaying purchases and shipments of goods—deciding whether to incur or postpone *discretionary* expenditures, restructuring business combinations, structuring lease contracts so that certain obligations can be placed on or off the balance sheet, or changing the form of investments to avoid consolidation requirements so that the income statement appears optimal (Sulistyanto, 2018) . However, earnings management practices have the potential to undermine the credibility of financial statements if they are used to mislead *stakeholders* by presenting conditions that do not reflect reality, which can lead to erroneous decision-making by investors and other parties (Sucipto & Zulfa, 2021) .

Solvency

Solvency is defined as an indicator used to quantify a company's ability to settle all of its financial obligations using its assets (Fitriana, 2024; Ginanjar & Rahmayani, 2021; Kusmawati et al., 2022) . This ratio also reflects the proportion of a company's capital structure financed by debt as well as the level of financial risk borne by the company, particularly in the event of liquidation. A high solvency ratio indicates the magnitude of the risk the company faces in meeting its obligations, especially if the proportion of debt is more dominant than assets (Rinjani & Indrati, 2024) . Although the use of debt can provide benefits such as tax savings through interest expenses, excessive use can actually increase the potential for *financial distress* (Mahfullah & Handayani, 2022) .

Firm Size

Firm size is an indicator used to classify the scale of a company, typically measured by total assets, sales, market capitalization, revenue, or total equity. The higher the value of these indicators, the larger the company's scale. *Firm size* reflects a company's operational capacity, resource strength, and ability to manage risks and conduct its business activities (Kusmawati et al., 2022) . Companies classified as large in terms of business scale typically have a more positive reputation and are considered

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more structurally stable, thereby enhancing investor and *stakeholder* confidence in decision-making.

HYPOTHESIS DEVELOPMENT

The Effect of *Earnings Management* on Financial Distress

Earnings management is a deliberate action carried out by management aimed at influencing financial statements through intervention in the reporting process or the manipulation of transactions, with the goal of presenting a favorable financial condition even when the actual situation is not so (Dewi & Efendi, 2023; Sulistyanto, 2018) . Management involved in profit manipulation essentially sends misleading signals to investors and creditors, with the aim of creating the perception that the corporate entity is in excellent financial condition, even though the company is actually experiencing a decline in performance. These signals, which do not reflect the actual conditions, actually exacerbate the information asymmetry between management—as the company's internal party—and external parties, which implies a reduction in the credibility of financial statements, which serve as the company's medium for conveying messages to *stakeholders* (Rinjani & Indrati, 2024). Therefore, *earnings management* is viewed as a negative signal because it indicates an attempt to conceal the actual decline in performance.

Earnings management, when practiced on an ongoing basis, can lead to financial statements containing biased information in the company's planning, control, or decision-making processes, and may not accurately reflect the company's actual economic condition. In the long term, *earnings management* can worsen a company's financial condition by hindering the early detection of declining performance and causing delays in taking corrective action. As a result, a company's already deteriorating financial condition worsens further, increasing the risk of *financial distress*. This is supported by empirical findings showing that *earnings management* has a positive effect on *financial distress* (Luu Thu, 2023; Novelia & Febyansyah, 2024; Rinjani & Indrati, 2024)

H1: *Earnings management* has a positive effect on *financial distress*

The Effect of Solvency on *Financial Distress*

Solvency reflects a company's capacity to repay its long-term liabilities, while also indicating the extent of the company's dependence on debt financing. The solvency ratio can serve as an indicator of a company's financial condition because high debt levels without sufficient cash flow generation will increase interest expenses and the risk of default, thereby raising the likelihood of *financial distress* (Nuzurrahma & Fahmi, 2022) . Conversely, if debt is optimally utilized for productive activities and supported by substantial profits or assets, solvency can reflect a company's financial strength and

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reduce the risk of financial distress (Mahfullah & Handayani, 2022; Nuzurrahma & Fahmi, 2022) . Therefore, the impact of solvency on the risk of *financial distress* is largely determined by a company's ability to manage its capital structure. These results are consistent with previous studies demonstrating that solvency has a negative effect on *financial distress*. These findings indicate that optimal and controlled solvency management will minimize the likelihood of a company falling into financial distress(Febriyanti & Haryanto, 2024; Kusmawati et al., 2022; Nuzurrahma & Fahmi, 2022; Ramadani & Ratmono, 2023; Taniva, 2026) .
H2: Solvency has a negative effect on *financial distress*

The Effect of *Firm Size* on *Financial Distress*

Firm size is an indicator that reflects a company's resource capacity, asset strength, and operational ability to respond to financial pressures. Larger companies generally control more extensive economic resources and can manage them optimally and more efficiently in managing production and operational activities, and have greater capacity to fulfill their obligations, thereby maintaining financial stability and being able to meet obligations and absorb potential losses (Baghaskara & Retnani, 2023; Maula et al., 2023; Novelia & Febyansyah, 2024) . Large-scale companies are obligated to provide more transparent and accurate information to *stakeholders*, which ultimately enhances the company's credibility in the eyes of investors and creditors. This can help the company secure financial support when facing financial pressures, thereby reducing the risk *of financial distress* (Kusmawati et al., 2022) . Therefore, large firms have a lower probability of entering a phase of financial distress, as supported by the findings of studies conducted by(2023), , (2024), , Maula et al. (2023), and Wangsih et al.(2021) , which concluded that *firm size* has a negative effect on *financial distress*.
H3: *Firm size* has a negative effect on *financial distress.*

The Effects of *Earnings Management*, Solvency, and *Firm Size* on *Financial Distress*

Financial distress refers to a condition in which a corporate entity is facing significant financial pressure, which can be identified by deteriorating performance, an inability to meet obligations, and the potential for bankruptcy. This situation does not occur in isolation but is the result of the interaction of various internal factors within the company, such as *earnings management*, solvency, and *firm size*. *Earnings management* reflects management's intervention in the financial reporting process, which may result in the information presented not accurately reflecting the actual conditions. This practice has the potential to mislead external parties and hinder the early detection of financial

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problems, and in the long term, it can increase the risk of *financial distress* (Dewi & Efendi, 2023; Novelia & Febyansyah, 2024; Rinjani & Indrati, 2024)

The solvency ratio reflects a company's ability to meet its liabilities (Ginanjar & Rahmayani, 2021). If a company can manage its debt effectively and is supported by substantial profits or assets, this implies a low likelihood of the company experiencing *financial distress* (Mahfullah & Handayani, 2022; Nuzurrahma & Fahmi, 2022) . Furthermore, *firm size* reflects the extent of a company's resources and capacity to conduct its operations; thus, larger firms generally have stronger financial fundamentals and broader access to capital, making them better equipped to face and mitigate the risk *of financial distress* (Baghaskara & Retnani, 2023; Novelia & Febyansyah, 2024) , Empirically, several previous studies have shown that *earnings management* has a positive effect on *financial distress*, while *firm size* and solvency have a negative effect on *financial distress* (Baghaskara & Retnani, 2023; Febriyanti & Haryanto, 2024; Kusmawati et al., 2022; Luu Thu, 2023; Maula et al., 2023; Novelia & Febyansyah, 2024; Nuzurrahma & Fahmi, 2022; Ramadani & Ratmono, 2023; Rinjani & Indrati, 2024; Taniva, 2026; Wangsih et al., 2021) .

H4: *Earnings management*, solvency, and *firm size* influence *financial distress*

RESEARCH METHOD

The research framework serves as a conceptual map that illustrates the direction of relationships or the influence of independent variables on the dependent variable in a study. The following is the research framework used in this study:

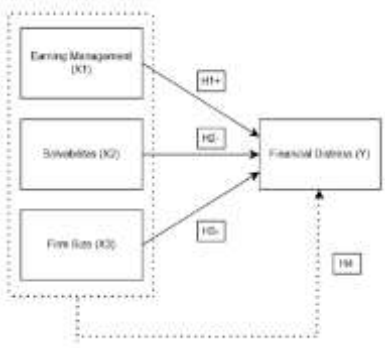


Figure 2. Research Framework

Quantitative methods were applied in this study to test whether a theory or conceptual model can explain the phenomena of the problem at the unit of analysis under investigation (Purwohedi, 2024) . This study adopts an associative research design, which is fundamentally designed to explore correlations and significant influences between at least two or more variables within a specific research framework. Secondary

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data serves as the primary source of information in this study, obtained directly from the companies' financial statements and annual reports. These documents were accessed through the official website of the Indonesia Stock Exchange (IDX) as well as the online portals of each respective company.

The population is defined as the total set of elements with specific characteristics selected by the researcher as units of analysis to be studied, in order to draw a conclusion. In determining the sample from this population, this study applied a *non-probability sampling* technique using a *purposive sampling* approach. Through this method, sample selection is carried out intentionally based on specific criteria or considerations that have been aligned with the research objectives (Purwohedi, 2024) . The following are the sample selection criteria used:

Table2. Sample Selection Criteria

No.	Criteria	Number
1	Manufacturing companies listed on the IDX for the 2022–2024 period.	287
2	Manufacturing sector companies that were not continuously listed on the IDX for the 2022–2024 period.	(116)
3	Manufacturing sector companies that did not consistently publish complete annual financial reports during the 2022–2024 period	(17)
4	Manufacturing companies that do not use the Rupiah for financial reporting	(23)
Number of companies included in the sample		31
Number of years in the study		3
Total sample size during the study period		393

Source: Data processed by the researcher, 2026

The stage following data collection is data analysis, which serves to process, interpret, and transform raw data into valuable information to answer the research questions and test the validity of the hypotheses. According to Ghozali(2021) , hypothesis testing in quantitative research relies on a statistical approach to the null hypothesis (H_0). The data analysis techniques used in this study include descriptive statistics and binary logistic regression analysis, with data processing assisted by IBM SPSS version 25 *software*. The binary logistic regression model operationalized in this study can be formulated as follows:

$$Ln\frac{FD}{1-FD} = \beta_0 + \beta_1 DA + \beta_2 DAR + \beta_3 FS$$

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Notes:

$Ln\frac{FD}{1-FD}$ = Logit of *financial distress*
β_0 = Constant
β_i = Regression coefficient (i=1,2,3)
FD = *Financial distress* opinion (nominal variable)
DA = *Discretionary Accrual*
DAR = *Debt-to-Assets Ratio*
FS = *Firm size*

The independent variables in this study are *earnings management*, solvency, and *firm size*, with *financial distress* as the dependent variable. The following measurements were used in this study:

Variable	Parameter	Scale	Reference
Financial Distress	Modified Altman Z-Score Model $Z" = 6{,}56X_1 + 3{,}26X_2 + 6{,}72X_3 + 1{,}05X_4$ Explanation: *Z" = Bankruptcy Index* X_1 = *Working Capital / Total Assets* X_2 = *Retained Earnings / Total Assets* X_3 = *Earnings Before Tax and Interest / Total Assets* X_4 = *Book Value of Equity / Total Liabilities* Z-score criteria: q If Z" < 1.1, the company is classified as bankrupt and assigned a code of 1. If 1.1 < Z" < 2.6, the company is in the gray zone and is assigned a code of 0.	References	M. Fauzan et al.(2024), Maula et al.(2023), and Taniva(2026) .

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Variable	Parameter	Scale	Reference
	If Z" > 2.6, the company is classified as not bankrupt and is assigned a code of 0		
Earnings Management	Modified Jones Model $DA = \frac{TAit}{Ait-1} - NDAit$ Notes: DA = *Discretionary Accrual* TACit = Total accruals of issuer i in year t. Ait-1 = Total assets of issuer i in year t. NDAit = *Non-discretionary accruals* of issuer i in year t.	Ratios	Agatha & Fathoni(2025), Kamau et al. (2022), Luu Thu(2023), and Mardianto et al. (2025)
Solvency	$DAR = \frac{Total\ Liabilities}{Total\ Asset}$	Ratios	M. Fauzan et al. (2024), M. J. N. Fauzan & Situngkir(2023), Febriyanti & Haryanto(2024), Kusmawati et al.(2022), Mahfullah & Handayani, and (2022)
Firm Size	$Firm\ Size = Ln(Total\ Asset)$	Ratio	Kusmawati et al. (2022), Febriyanti & Haryanto (2024), Subari (2024), and Taniva (2026)

Source: Data processed by the researcher, 2026

Acquiring negotiation skills will aid in establishing the upper hand in our life journey. Learning and mastering negotiation skills promote competitive advantages in

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both the academic and personal lives of an individual. Though it cannot be imbibed overnight, it is always advisable and recommendable to teach healthy negotiation skills right from schooling. With the help of exposure to numerous effective negotiating strategies and techniques, one can master the skill of negotiation technique over a period of time. It makes the individuals more empathetic and it helps in understanding the needs of others. On the whole, it fosters goodwill amongst the people which will in turn help in concerning everybody's apprehension while dealing with a conflict. Negotiation skills significantly contribute to the success of the business scenario by enhancing the skills by giving quality solutions for problematic situations. Amongst the future-ready skills series, negotiation skills occupy a vital place. No matter how technology changes, negotiation skill is the hour of the need in the arena of the business world.

RESULT AND DISCUSSION

Descriptive Statistical Analysis

Table3. Descriptive Statistics Results

	N	Minimum	Maximum	Mean	Std. Deviation
Financial Distress	393	0	1	0.201	0.40127
Earning Management	393	-3.81	0.01	-0.01	0.19219
Solvabilitas	393	0.03	4.76	0.4522	0.43224
Firm Size	393	24.6	32.97	28.1625	1.66937
Valid N (listwise)	393				

Based on the data in Table 3, the *financial distress* variable recorded a minimum value of 0, exemplified by PT Sinergi Inti Plastindo Tbk (ESIP), which has a high *Z-Score* due to its strong capital structure. Conversely, the maximum value of 1 was recorded by PT Indofarma Tbk (INAF), which had *a* negative *Z-score* due to high liabilities and persistent losses. The mean value for the *financial distress* variable is 0.2010 with a standard deviation of 0.40127, indicating that the data variation is quite large and the data points are widely dispersed from the mean. Meanwhile, the *earnings management* variable, measured using the *discretionary accrual* (DA) proxy, showed a minimum value of -3.81 for PT Nanotech Indonesia Global Tbk (NANO) in 2023. This figure reflects a practice of *income decrease* driven by a high *non-discretionary accrual* (NDA) component resulting from significant changes in accounts receivable. The maximum value of this variable reached 0.01, recorded by PT Alakasa Industrindo Tbk (ALKA) in 2023, indicating an effort *to increase earnings* through large accrual components triggered by a sharp decline in sales. In general, the *earnings management* variable has a mean of -0.0100 with a standard deviation of 0.19219, confirming that the data exhibits a high level of volatility and is widely dispersed from its mean.

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Solvency, as an independent variable operationalized using the debt-to-total-assets ratio, has a minimum value of 0.03 for PT Sinergi Inti Plastindo Tbk (ESIP), indicating that the company's liabilities are relatively small compared to its total assets, reflecting a stable financial condition and low risk. Conversely, the maximum value of 4.76 was recorded by PT Tirta Mahakam Resources Tbk, indicating that the company's total liabilities far exceed its assets and showing that the company is heavily reliant on debt financing to operate, thereby potentially increasing the risk *of financial distress*. Overall, the average solvency ratio of 0.4522 highlights that the company finances approximately 45.22% of its assets with debt, meaning its funding structure remains dominated by equity and is considered relatively safe. Furthermore, the standard deviation of 0.43224—which is below the average value of —indicates that the data is concentrated around the mean with a relatively low level of dispersion.

This study operationalizes the *firm size* variable through a natural logarithmic transformation of the total assets controlled by the company. Based on the analysis results, the minimum value of 24.6 is held by PT Sentra Food Indonesia Tbk (FOOD), reflecting a relatively small company size due to a decline in total assets during the observation period, which could potentially limit its operational capacity and ability to withstand economic pressures. Conversely, the maximum value of 32.97 was recorded by PT Nanotech Indonesia Global Tbk (NANO), indicating a large firm size with a consistent upward trend in assets, reflecting expansion and stronger resource capacity, thereby resulting in a relatively lower risk *of financial distress*. Overall, the average *firm size* of 28.1625 with a standard deviation of 1.66937 indicates that the data exhibits strong central tendency and low dispersion, suggesting that variations in firm size across the sample are relatively homogeneous without extreme differences.

Classical Assumption Tests

The classical assumption test implemented for this study is the multicollinearity test, which aims to identify significant correlations among independent variables within a regression model specification (Ghozali, 2021) . Referring to the data in Table 4, the multicollinearity test shows that the independent variable *"earnings management"* has a *tolerance* value of 0.978 and *a Variance Inflation Factor* (VIF) of 1.022. Furthermore, the "solvency" variable recorded a *tolerance* value of 0.997 with a VIF of 1.003, while the *"firm size"* variable had a *tolerance* value of 0.977 and a VIF of 1.023. The *tolerance* values for these three independent variables are above the 0.10 threshold, accompanied by VIF values below 10. These results confirm that the regression model in this study is free from multicollinearity issues among the independent variables, allowing the data modeling to proceed to the hypothesis testing stage.

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Table4. Multicollinearity Test Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	Earning M	0.978388305	1.022089077
	Solvabilit	0.996965877	1.003043357
	Firm Size	0.977259262	1.023269913

a. Dependent Variable: Financial Distress

Source: SPSS 25 Output, 2026

Binary Logistic Regression Analysis

a. *Overall* Model *Fit* Test

Table5. Results of *the Overall Model Fit* Test

-2 Log likelihood Block 0 : Beginning Block	-2 Log likelihood Block 1 : Method = Enter
394.42	154.16

The overall model fit test was conducted to determine the capability of the designed model to explain the association between the independent and dependent variables. Based on Table 5, the initial *-2Log Likelihood* value was 393.423 and the final *2Log Likelihood* value was 154.165. Based on these results, it was found that the -2Log Likelihood value decreased by 240.258. Thus, this decrease in the *-2Log Likelihood* value serves as statistical evidence ( ) that the model including all three independent variables performs better than a model containing only a constant; in other words, this regression model has met all requirements and is therefore operational.

b. Model Fit Test (Hosmer and Lemeshow's Goodness of Fit Test)

Table6. Results of the Model Fit Test (*Hosmer and Lemeshow's Goodness of Fit Test*)

Step	Chi-square	df	Sig.
1	10.477	8	0.233

Source: SPSS 25 Output, 2026

To assess the level of fit between the estimated model and the empirical data, the *Hosmer and Lemeshow Goodness of Fit* Test was conducted (Ghozali, 2021) . The results of this test, as shown in Table 4.6, indicate a *Chi-Square* value of 10.477 with a

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significance level of 0.233. Since the obtained significance level is greater than the 0.05 criterion, it can be concluded that this hypothetical model fits the empirical data. Therefore, the model is deemed suitable and meets the requirements for use in subsequent stages of analysis.

c. Coefficient of Determination Test (Nagelkarke's R-Square)

Table7. Results of the Coefficient of Determination Test

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	154.165a	0.457	0.722

a Estimation terminated at iteration number 10 because parameter estimates changed by less than .001.

Source: SPSS 25 Output, 2026

In logistic regression, the ability of independent variables to provide information for predicting the dependent variable is measured using the coefficient of determination test— (Ghozali, 2021) . Based on the data in Table 4.12, the *Nagelkerke R-Square* value was 0.722 (72.2%) and the *Cox and Snell R-Square* value was 0.457 (45.7%). Based on these findings, it can be concluded that the variation in the probability of *financial distress* can be explained by a combination of *earnings management*, solvency, and *firm size* variables, accounting for 72.2% of the variation. Meanwhile, the remaining 27.8% is influenced by other external factors beyond the scope of this study's modeling.

d. Classification Matrix

Table8. Classification Matrix

Observed			Predicted: Financial Distress		Percentage Correct
			Non Financial Distress	Financial Distress	
Step 1	Financial Distress	Non Financial Distress	301	13	95.9
		Financial Distress	22	57	72.2
	Overall Percentage				91.1

a The cut value is .500

Source: SPSS 25 output, 2026

The classification table is used to assess the extent to which the logistic regression model is able to accurately classify observed data into the correct categories. This table presents a comparison between the model's predictions and actual outcomes, thereby revealing the number of correct and incorrect predictions (Ghozali, 2021) . Based on the

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data in Table 8, the classification matrix results indicate that the predictive model has a high accuracy rate of 91.1% in correctly identifying a company's *financial distress* status. When analyzed in more detail from the total of 393 samples tested , the model's accuracy in predicting companies that are actually experiencing *financial* distress reached 72.2%. Meanwhile, the model's ability to classify companies that are in a healthy condition or not experiencing *financial distress* showed a higher percentage, namely 95.9%.

Hypothesis Testing

a. Partial Test (*Wald Test*)

The significance of the effects of the variables *earnings management*, solvency, and *firm size* on *financial distress* in this study was analyzed using a binary logistic regression model. This analytical method was chosen to quantitatively measure the extent of each independent variable's contribution or ability to predict the probability of *financial distress* occurring in a company. The results of the Wald test are presented below:

Table9. Wald Test Results

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1a	Earning Management	88.215	84.027	1.102	1	0.294	2.05E+38	0	6.84E+109
	Solvabilitas	13.407	1.637	67.086	1	0	664584.422	26869.054	16437960.8
	Firm Size	-0.654	0.156	17.572	1	0	0.52	0.383	0.706
	Constant	9.713	4.138	5.51	1	0.019	16532.675		

a Variable(s) entered on step 1: Earning Management, Solvabilitas, Firm Size.

Source: SPSS 25 Output, 2026

This study employs binary logistic regression analysis to test the substantive influence of the independent variables—*earnings management*, solvency, and *firm size*—on the dependent variable, *financial distress*, on a partial basis. Through the application of this statistical model, the strength or contribution of each independent variable can be specifically measured in predicting and estimating the probability of *financial distress* occurring in a company. The following presents the results of the Wald test:

Based on Table 9, which presents the results of the logistic regression analysis, the logistic regression equation can be formulated as follows:

$$Ln\frac{FD}{1-FD} = 9{,}713 + 88{,}215DA + 13{,}407DAR - 0{,}654FS + e$$

Referring to the specified logistic regression model, the constant term of 9.713 indicates that if the variables *earnings management* (X_1), solvency (X_2), and *firm size* (X_3) are assumed to be constant or equal to zero,

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, the value of *financial distress* for the firm is 9.713. The results of the Wald test also show the following:

1. The *earnings management* variable has a regression coefficient of 88.215 with a significance level of 0.294. Since this significance level is greater than the alpha value of 0.05, it can be concluded that *earnings management* does not have a significant effect on *financial distress*. This test result implies the rejection of the first hypothesis (H1).
2. The solvency variable recorded a regression coefficient of 13.407 and a significance level of 0.000. Since the significance level is below 0.05, solvency is proven to have a positive and significant effect on *financial distress*. Thus, the second hypothesis (H2) in this study is rejected.
3. The *firm size* variable yielded a regression coefficient of -0.654 with a significance level of 0.000, which is below 0.05. This figure indicates that *firm size* has a negative and significant effect on the risk *of financial distress*, meaning that the third hypothesis (H3) is accepted.

b. *Omnibus Test*

Table10. Omnibus Test Results

		Chi-square	df	Sig.
Step 1	Step	240.258	3	0
	Block	240.258	3	0
	Model	240.258	3	0

Source: SPSS 25 Output, 2026

To assess the collective effect of the group of independent variables on the dependent variable in the logistic regression model, a simultaneous test—was used . Based on the data summary in Table 10, a *Chi-Square* value of 240.258 was obtained with a significance probability of 0.000. Given that the resulting significance level is well below 0.05, it can be concluded that all independent variables collectively have a significant effect on the dependent variable. The results of this empirical test also confirm that the fourth hypothesis (H_4) in this study is accepted.

DISCUSSION

The Effect of *Earnings Management* on *Financial Distress*

Based on the results of the data analysis, it has been proven that *earnings management* does not play a significant role in triggering *financial distress*. This empirical finding confirms the fact that the intensity of earnings management practices—whether high or low—is not a determining factor causing a company to fall into financial distress. Although theoretically, earnings management is often equated with manipulation aimed at concealing a decline in a company's performance, the analysis in this study shows that

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the impact of such practices is not material in terms of financial vulnerability. These results also suggest that the earnings management maneuvers undertaken by companies do not necessarily serve as a negative signal to the market. Under certain conditions, earnings management is actually carried out as part of a managerial strategy—such as income smoothing or meeting specific targets—without leading to an increased risk of financial distress (Sayidah et al., 2020).

Furthermore, although there is a positive relationship between *earnings management* and *financial distress*, this relationship is not causal, reinforcing the view that *financial distress* is influenced more by a company's fundamental factors than by accounting practices alone. On the other hand, the existence of oversight mechanisms such as internal control systems and external audits helps limit management's ability to manipulate financial statements, thereby rendering the impact on the company's financial condition insignificant (Kamau et al., 2022) . The subjects of this study are manufacturing sector entities listed on the Indonesia Stock Exchange (IDX) that have generally implemented the principles of good corporate governance, such as the existence of an independent board of commissioners, an audit committee, and compliance with the principle of information disclosure, which play a role in maintaining the company's financial stability. Thus, the absence of a significant effect in this study can be interpreted as an indication that corporate governance mechanisms have been functioning effectively in mitigating financial risks.

Empirically, this phenomenon can be observed in PT Nanotech Indonesia Global Tbk (NANO), which in 2023 had a discretionary accrual (DA) value of -3.81, indicating *income-decreasing earnings management* practices, even though its Altman Z-Score was 7.58, which falls within the "healthy" category. A similar situation occurred at PT Alakasa Industrindo Tbk (ALKA), which had a DA value of 0.01, reflecting income-increasing earnings management, yet still demonstrated sound financial health with a Z-Score of 7.65. This reinforces the finding that *earnings management*—whether aimed at increasing or decreasing profits—does not always directly imply *financial distress*. These findings align with those in the " , which state that *earnings management* does not have a significant effect on *financial distress.*

The Effect of Solvency on *Financial Distress*

The findings of this study indicate that solvency has a significant positive effect on *financial distress*. This suggests that the greater a company's debt burden, the higher the probability that it will fall into a phase of financial distress. This occurs because high solvency reflects a company's dependence on external financing, accompanied by high interest expenses and principal repayment obligations (Rinjani & Indrati, 2024) . If a company's cash flow is insufficient to cover these obligations, liquidity pressure will arise, which has the potential to trigger *financial distress*.

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Solvency is a key indicator that investors focus on when evaluating a company's financial condition. An increase in a company's debt can be a positive signal if it is used to support expansion and improve productivity (Wangsih et al., 2021) . However, if the increase in debt is not offset by adequate growth in profits and assets, this situation becomes a negative signal reflecting an increased risk *of financial distress* (Rinjani & Indrati, 2024) . A high solvency ratio reflects an excessive reliance on external funding, which can ultimately increase the risk of default and undermine the confidence of investors and creditors (Nuzurrahma & Fahmi, 2022) .

Empirical evidence from this study can be observed in PT Tirta Mahakam Resources Tbk (TIRT). Throughout the period from 2022 to 2024, the company recorded significant increases in its *Debt-to-Assets Ratio* (DAR), at 3.387, 3.940, and 4.756, respectively. This upward trend in the ratio confirms that the company's capital structure is heavily reliant on external borrowing, which implies a swelling of financial obligations that must be settled. This condition is further underscored by the results of *the Altman Z-Score*, which continues to plummet far below the 1.1 threshold—namely -15.81 (2022), -13.73 (2023), and -18.06 (2024)—thereby placing the company in the danger zone of *financial* distress leading to bankruptcy. This empirical reality aligns with the premise of Rinjani & Indrati(2024) and Wangsih et al. ((2021)), who state that solvency levels are directly proportional to the potential *for financial distress*. In other words, massive debt accumulation that is not offset by profitability and adequate cash flow will automatically increase a company's vulnerability to *financial distress*.

The Effect of *Firm Size* on *Financial Distress*

The findings confirm that *firm size* has a significant negative effect on *financial distress*. This suggests that large firms generally possess strong and stable financial stability, stemming from robust resources, greater flexibility in accessing funding sources, and greater flexibility in managing cash flow and financial obligations. With extensive total assets, these firms are better equipped to meet their obligations and absorb potential losses, resulting in more stable financial conditions. Furthermore, the more positive reputation of large firms among investors and creditors makes it easier for them to obtain financial assistance when facing economic pressures (Baghaskara & Retnani, 2023; Maula et al., 2023) .

Firm size is a crucial signal that is a primary focus for stakeholders when evaluating a company's fundamental conditions and sustainability prospects. Companies with substantial accumulated assets tend to send positive signals because they demonstrate strong resource capacity, good operational stability, and superior ability to meet their obligations, thereby reducing the risk *of financial distress* (Baghaskara & Retnani, 2023; Maula et al., 2023) . Conversely, relatively small-scale companies often signal higher risk

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due to limited access to funding and lower operational capacity, making them more vulnerable to *financial distress* (Febriyanti & Haryanto, 2024) . These conditions make large companies better able to withstand financial pressures compared to small companies.

The Effects of *Earnings Management*, Solvency, and *Firm Size* on *Financial Distress*

The findings of this study demonstrate that *earnings management*, solvency, and *firm size* simultaneously influence *financial distress*, proving that *financial distress* arises from the dynamic interaction among several internal firm variables, where the combination of earnings management practices, debt structure, and firm size collectively determines a firm's level of vulnerability to financial distress. From a signaling theory perspective, *earnings management* can serve as a negative signal when used to manipulate earnings; solvency reflects financial signals through the firm's capital structure; and *firm size* indicates the firm's strength and stability. Thus, the combination of these three factors shapes the market's perception of the firm's financial health (Maula et al., 2023; Rinjani & Indrati, 2024; Wangsih et al., 2021) . Empirical evidence can be seen in PT Indofarma Tbk (INAF), which experienced extremely severe *financial distress*, with an Altman Z-Score that continued to decline from -2.55 in 2022 to -20.89 in 2023 and -27.20 in 2024, accompanied by a solvency ratio that continued to rise from 0.94 to 2.85—indicating a high reliance on debt—as well as a decline in *firm size* reflecting a weakening of the company's asset capacity, with values of 28.06 in 2022, 27.36 in 2023, and 27.15 in 2024. Meanwhile, *earnings management* practices continued to occur, albeit at relatively small levels: 0.00342 in 2022, 0.00240 in 2023, and 0.00082 in 2024. The combination of these three factors reinforces the conclusion that the financial pressure experienced by the company is not caused by a single factor, but rather by the interaction of various factors that simultaneously increase the risk *of financial distress*.

CONCLUSION

Based on the results of the analysis and discussion outlined above, the following conclusions can be drawn:

a. Earnings management activities, as measured using the discretionary accruals (DA) proxy, were found to have no significant effect on financial distress. This phenomenon indicates that fluctuations in earnings management practices implemented by management are not the primary indicators driving companies into financial distress.

b. The solvency variable, as indicated by the debt-to-assets ratio (DAR), shows a positive and significant contribution to an increase in the risk of financial distress. This finding

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confirms that an excessive increase in debt burden within a company's financing structure will widen the likelihood of a future financial crisis.

c. Firm size, proxied by the natural logarithm of total assets, exerts a significant negative influence on vulnerability to financial distress. In other words, companies with greater operational capacity and larger assets tend to have stronger protection, thereby reducing their likelihood of experiencing financial distress.

d. Simultaneously, the combination of earnings management, solvency, and firm size was found to have a significant effect on financial distress. These collective test results confirm that the interaction of these three factors collectively plays a vital role in detecting and determining a company's financial health.

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